

Facilities

Under the No Action Alternative, the operations conducted at TA-18 would continue at the level described in the *LANL SWEIS* with no major buildings, facility modifications, or changes to the infrastructure associated with buildings or safeguards and security. Current SNM inventories (all security categories), as well as the criticality experiments machines, would remain in place.

The TA-18 buildings and structures are located at the Pajarito site, about 5 kilometers (3.1 miles) from the nearest residential area (the White Rock community) and about 400 meters (0.25 miles) from the closest technical area (TA-54) (see **Figure S-1**). The Pajarito site is in an arid canyon and the surrounding canyon walls provide some natural shielding for the TA-18 facilities.

The facilities consist of three remote-controlled laboratories (Buildings 23, 32, and 116), or CASAs, and a separate weatherproof shelter near Building 23 that houses the SHEBA machine (Building 168). These facilities are located some distance from the main laboratory (Building 30) that houses individual control rooms for these remote-controlled laboratories. A Perimeter Intrusion Detection and Assessment System (PIDAS) security fence surrounds each CASA. The SHEBA building is within the PIDAS of CASA 1.

Each CASA is surrounded by a physical security boundary that is evacuated before remote operation, and automatic signals forewarn anyone who might be overlooked during building evacuation prior to the initiation of experimental operations. When the gate to this area is open, operation is prevented by interlocks and by key-actuated switches that require the same (captive) key for applying power to assemblies and for opening the site.

S.3.2.2 TA-18 Upgrade Alternative

Under this alternative, the building infrastructure and security infrastructure at TA-18 would be upgraded to maintain the operations and SNM activities (all security categories) at the existing TA-18 facilities.

Facilities

For the TA-18 facilities to meet expected operational requirements and security needs, significant upgrades at TA-18 would be required. New construction and modifications proposed for continuing operations at TA-18 are described briefly below.

New construction would consist of: (1) a new one-story office and laboratory building, (2) a new one-story control room, (3) a new one-story pre-engineered metal storage building (dome warehouse), and (4) a storage vault added to Building 26 (Hillside vault). **Figure S-2** provides a plan view of proposed modifications to existing structures and the addition of new structures. The figure provides three options for the location of the new office and laboratory space, shows the location of the new vault, provides two options for the location of the dome warehouse, and provides two options for the location of the control-room addition. The EIS evaluates Option 3 for the laboratory and office addition, Option 2 for the dome warehouse, and Option 2 for the control-room addition. These options were selected to maximize the impacts from a land-use point of view. In addition to new construction, various modifications to existing facilities would be needed, such as reroofing, reinforcing walls, painting, sealing cracks, and replacing glass blocks. **Figure S-3** provides details of the proposed new construction.

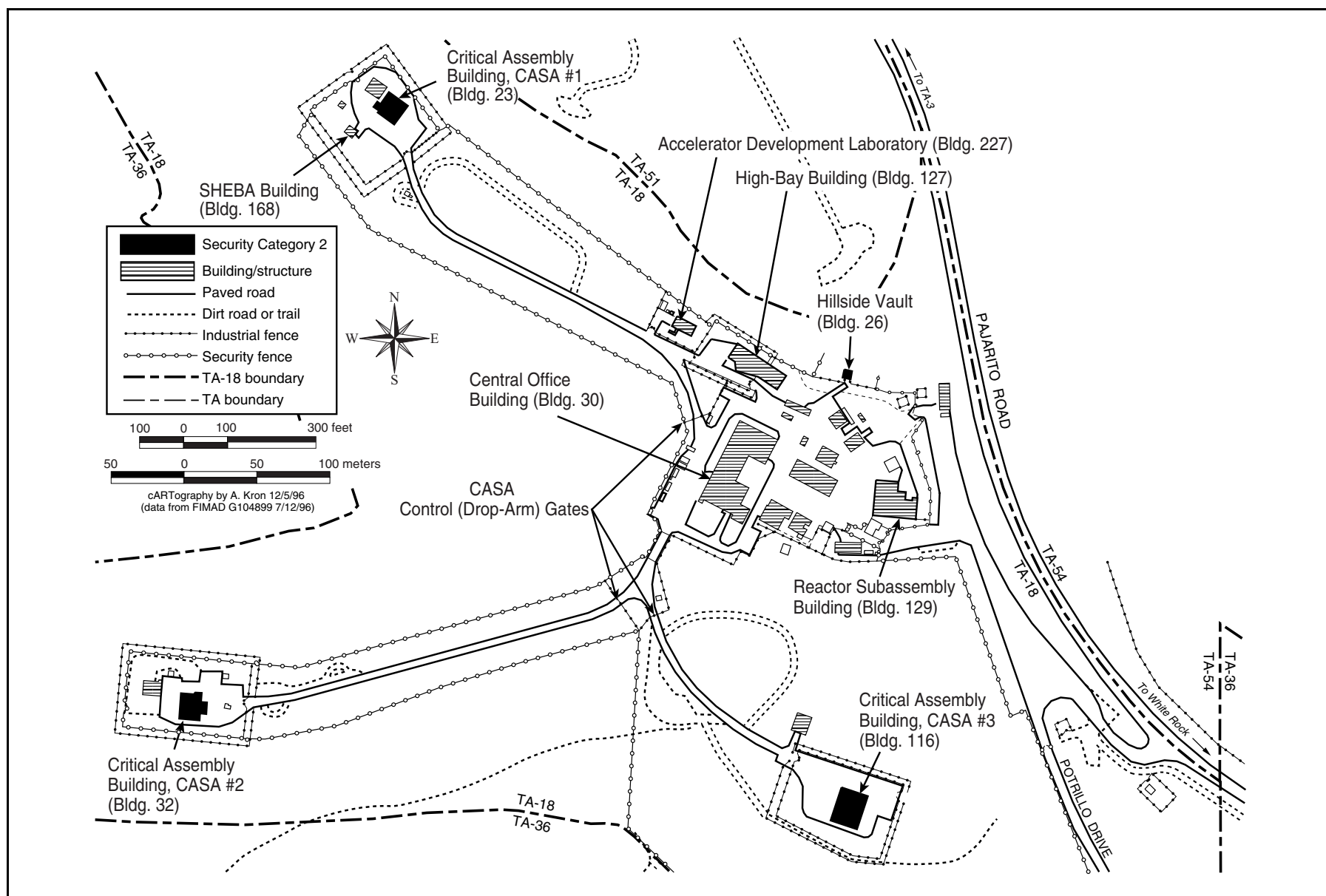


Figure S-1 TA-18 Pajarito Site

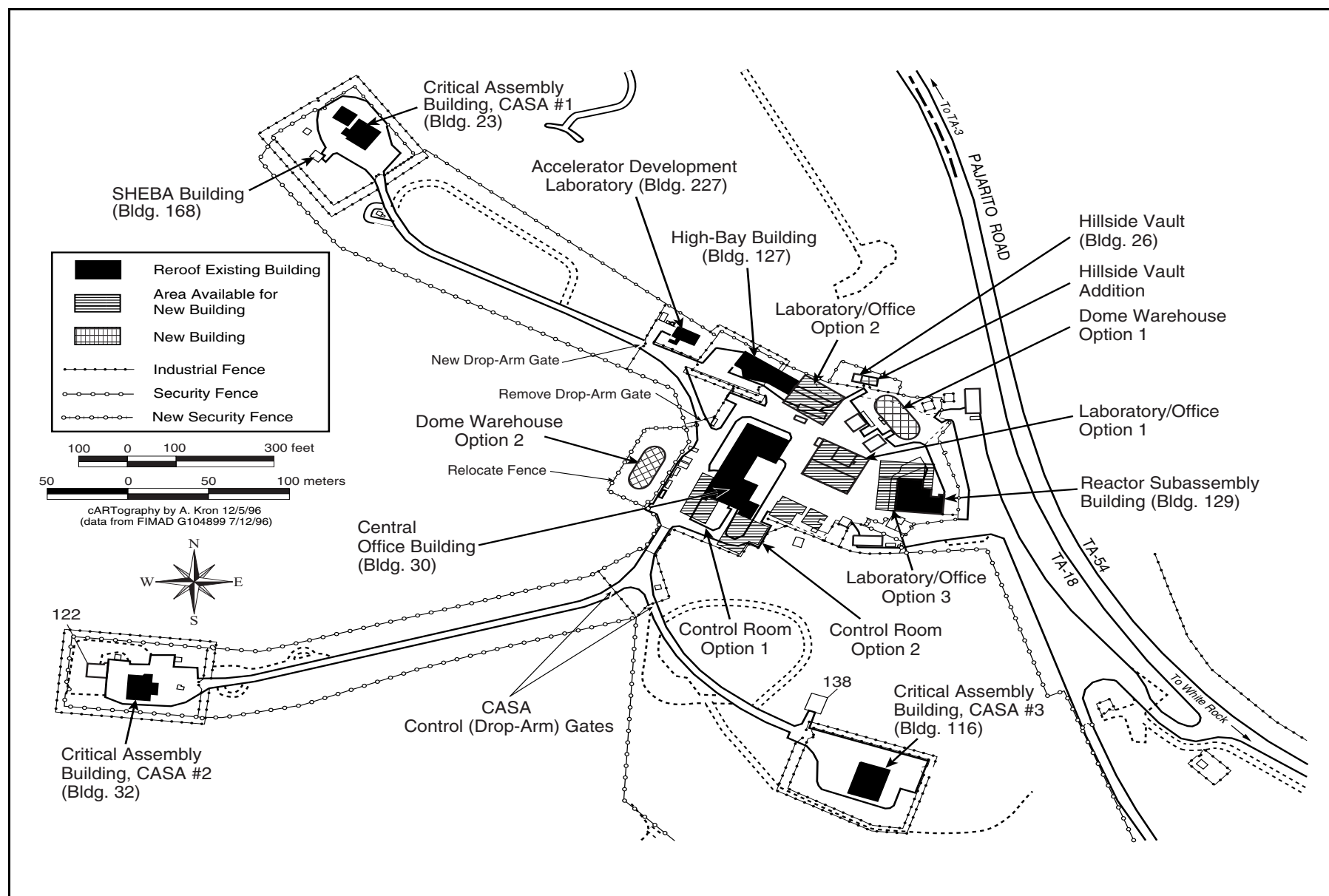


Figure S-2 TA-18 Proposed Modifications Plan (TA-18 Upgrade Alternative)

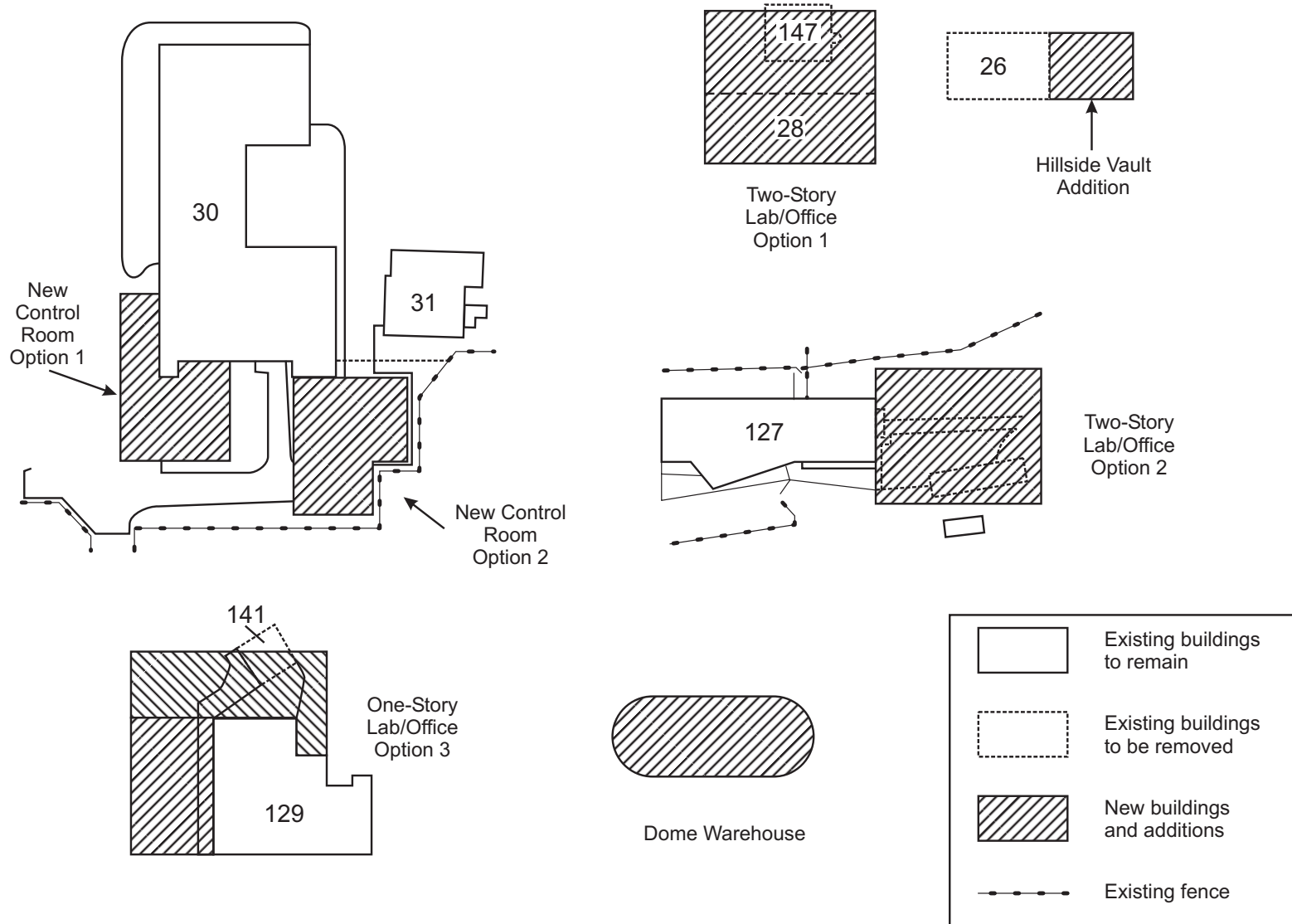


Figure S-3 TA-18 Proposed New Construction (TA-18 Upgrade Alternative)

In addition to new construction, the following would be needed:

- Installation of high-efficiency particulate air filters in conjunction with negative pressurization of the CASAs
- Extensive paving and surfacing improvements
- Replacement of potable and fire-protection water systems
- Replacement of the sanitary sewage system
- Storm-water management improvements
- Site grading
- Additions or replacements of heating, ventilating, and air conditioning; power distribution and monitoring; lightning protection; grounding; and surge suppression
- PIDAS upgrades
- Physical security enhancements

S.3.2.3 LANL New Facility Alternative

This alternative would involve the relocation of TA-18 operational capabilities and materials associated with security Category I/II activities to new buildings northwest of the existing Plutonium Facility 4 in LANL's TA-55 and extension of the existing TA-55 PIDAS. The location of the proposed new buildings is shown in **Figure S-4**. The site plan for the proposed buildings is shown in **Figure S-5**. Under this alternative, a portion of the security Category III/IV activities (the SHEBA activities) would either be relocated to a new structure at TA-39 or remain at TA-18. The rest of the security Category III/IV activities would either be relocated to a new structure at TA-55 or remain at TA-18. The relocation of SHEBA and other security Category III/IV activities to new structures at LANL is discussed in Section S.3.2.7.

Facilities

The new security Category I/II operations buildings would consist of above-grade structures that would house support operations and below-grade structures that would house critical assembly areas and SNM vaults. The critical assembly level would consist of criticality bays and SNM vaults that would be below-grade, with a minimum of 6 meters (20 feet) of cover consisting of rubble and earth. This level would consist of approximately 3,252 square meters (35,000 square feet) of floor space. Construction of the below-grade portions of the facility would consist of reinforced concrete. **Figure S-6** shows the location of the critical assembly machines and SNM vaults at the critical assembly level.

The control-room level would consist of the control rooms for the criticality bays and other support areas. The control-room level would be at grade and constructed of reinforced concrete. This level would consist of approximately 1,161 square meters (12,500 square feet) of floor space.

The new low-scatter bay would be a pre-engineered-type building with a 5-meter-deep (15-foot-deep) basement. The building would consist of approximately 604 square meters (6,500 square feet) of floor space.

S.3.2.4 SNL/NM Alternative

This alternative would involve the housing of the TA-18 operational capabilities and materials associated with security Category I/II activities within TA-V at SNL/NM. Under this alternative, a portion of the security Category III/IV activities (the SHEBA activities) would either be relocated to a new structure at LANL's TA-39 or remain at TA-18. The rest of the security Category III/IV activities would remain at TA-18 (see Section S.3.2.7).

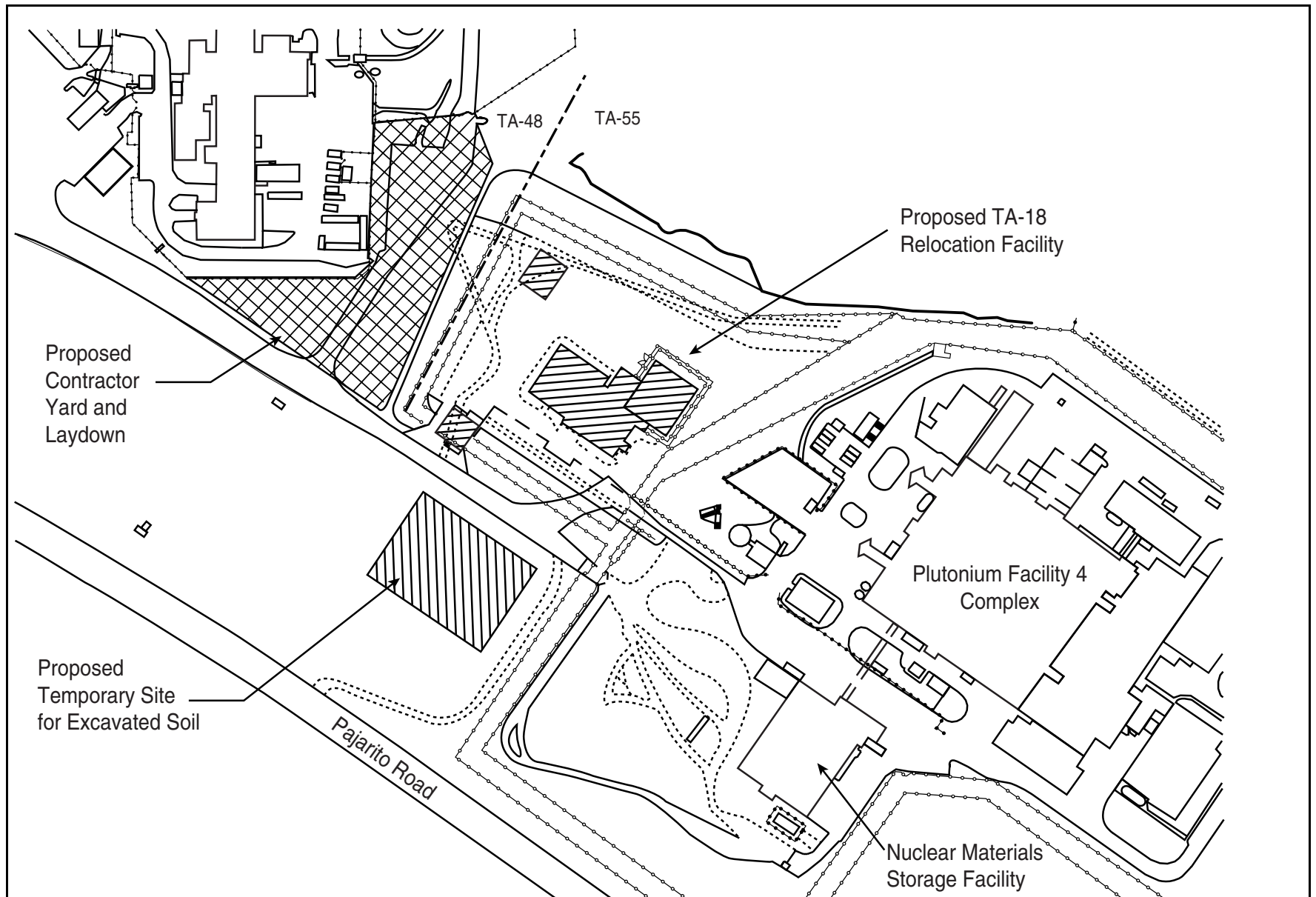


Figure S-4 Location of the Proposed New Facility (LANL New Facility Alternative)

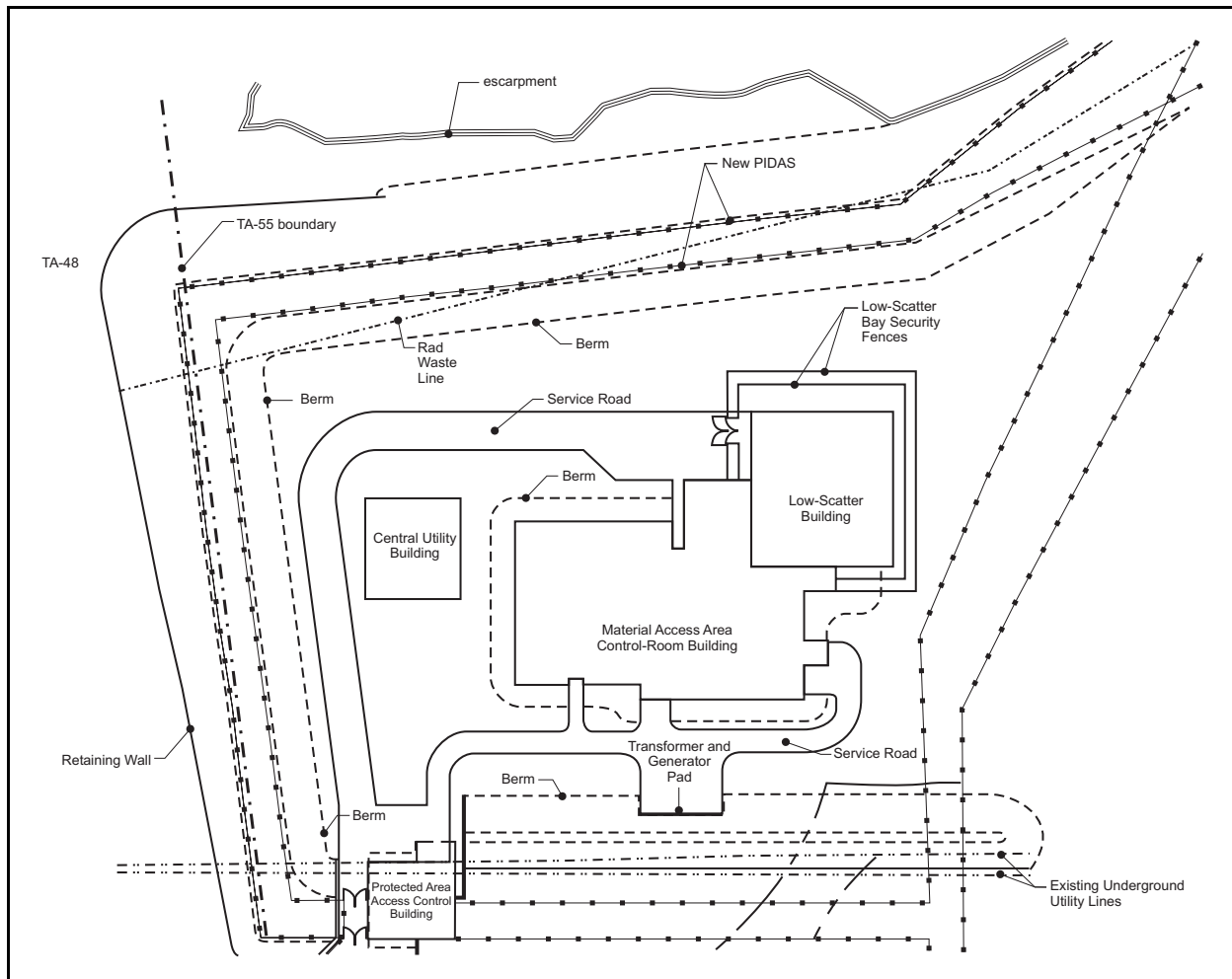


Figure S-5 Site Plan for Proposed LANL Facility (LANL New Facility Alternative)

Facilities

To support the relocation of TA-18 operational capabilities and materials associated with security Category I/II activities, it is proposed to construct a new underground facility and modify or renovate 10 existing aboveground buildings. All construction and renovation activities would be within SNL/NM's TA-V. The locations of the proposed new facility and existing buildings are shown in **Figure S-7**.

The overall size of the new underground facility would be approximately 3,286 square meters (35,370 square feet); the areas proposed to be renovated in all 10 existing buildings would total approximately 5,007 square meters (53,895 square feet). Proposed new underground construction would include nuclear material storage vaults, the larger portion of the critical assembly facility, the active interrogation facility, and a general-purpose nuclear material work bay. **Figure S-8** shows a schematic of the underground facility.

Structures that would be located in the aboveground renovations would include emergency response staging and maintenance, electronics, and a machine shop and instrumentation laboratory in the Hot Cell Facility (Building 6580); the critical assembly control rooms and warehouse in the Auxiliary Hot Cell (Building 6597); a low-scatter facility in the chapel (Building 6596); waste management storage areas in the warehouse (Building 6595); and explosive storage and radioactive-source storage areas in the Reactor Maintenance Facility (Building 6593). An existing shop (Building 6591) would also be used as a staff shop.

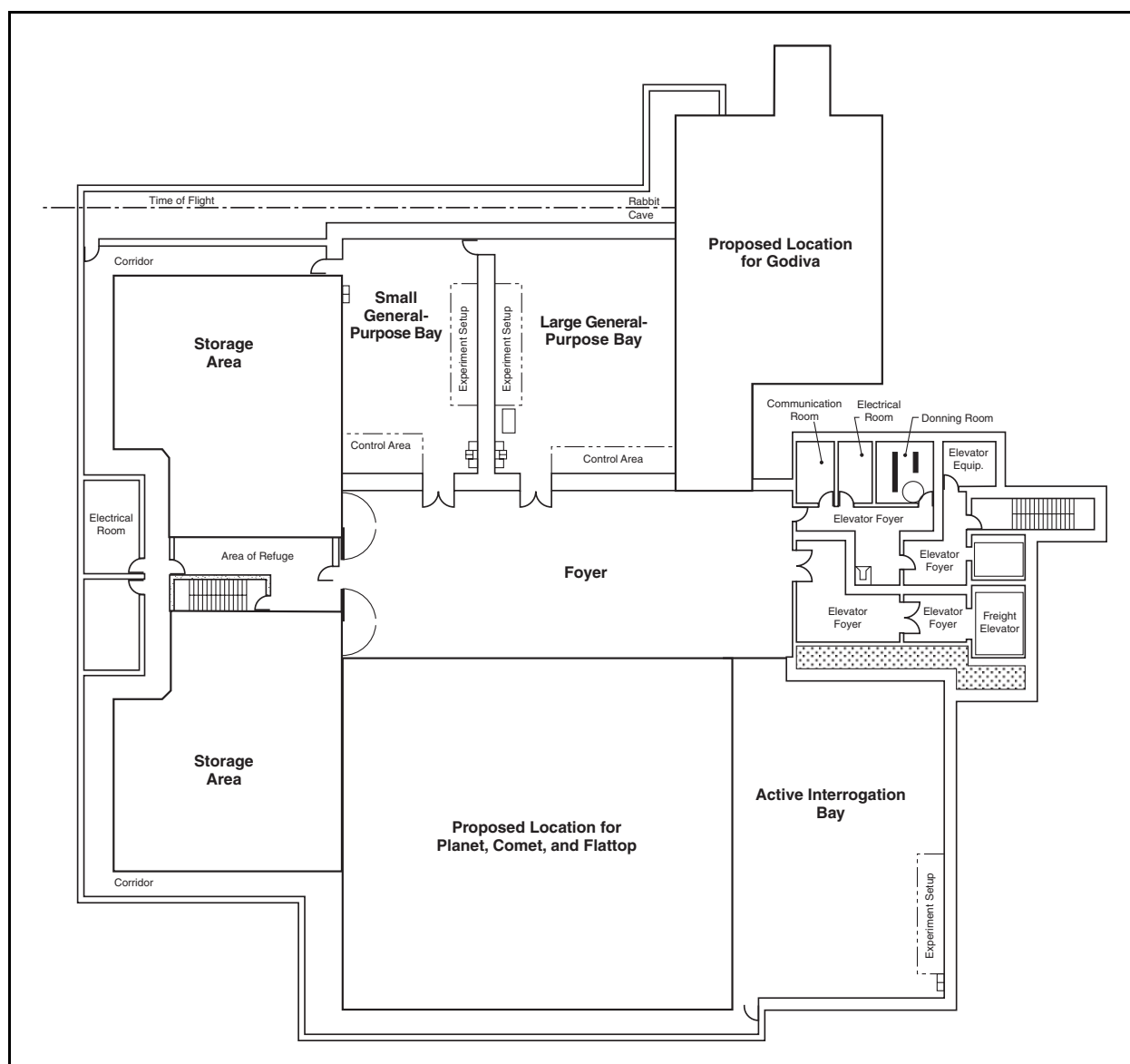


Figure S-6 Location of Critical Assembly Machines and SNM Vaults

S.3.2.5 NTS Alternative

This alternative would involve housing the TA-18 operational capabilities and materials associated with security Category I/II missions in and around the existing DAF at NTS. For this purpose, DAF would be modified internally to accommodate the critical assembly machines, control rooms, and SNM vaults, and two new buildings would be constructed external to the DAF security perimeter. The two new buildings would be a “low-scatter” facility to house emergency response activities with minimal reflection and a new administration building to accommodate a DAF Central Command Station and increased staffing associated with the TA-18 security Category I/II operations. Under this alternative, a portion of the security Category III/IV activities (the SHEBA activities) would either be relocated to a new structure at LANL’s TA-39 or remain at TA-18. The rest of the security Category III/IV activities would remain at TA-18 (see Section S.3.2.7).

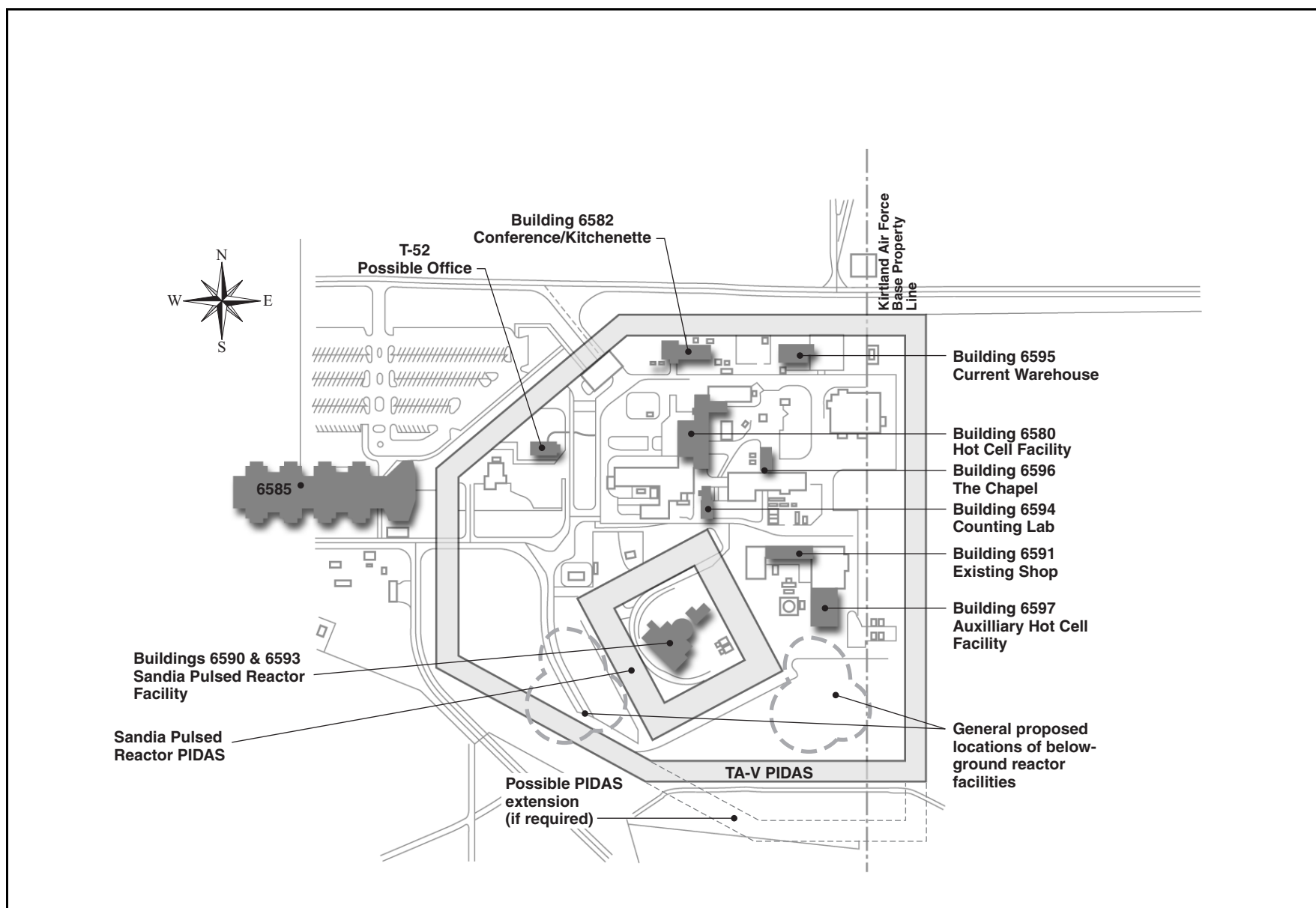


Figure S-7 Proposed New SNL/NM Facility and Existing Facilities (SNL/NM Alternative)

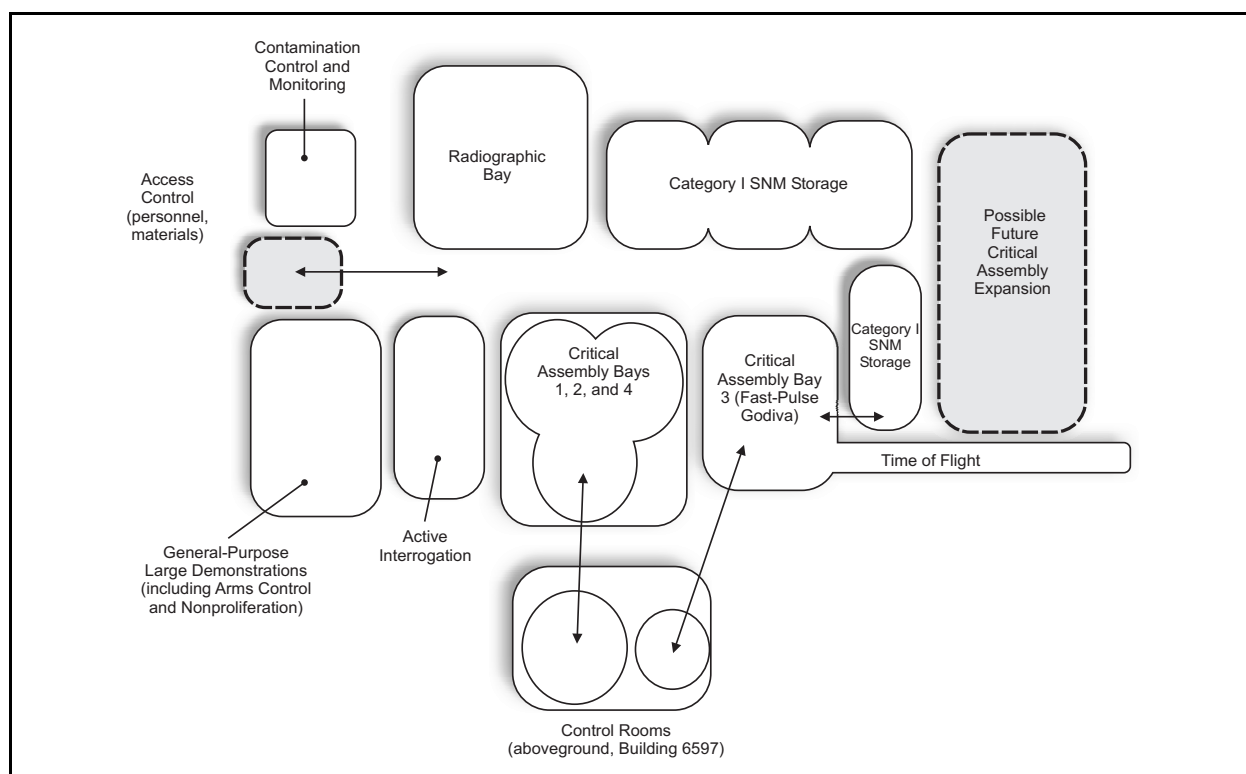


Figure S-8 Schematic of the Underground Facility (SNL/NM Alternative)

Facilities

Device Assembly Facility

DAF is a 9,290-square-meter (100,000-square-foot) nuclear explosive facility within a 12-hectare (29-acre) high security area, located in Area 6 of DOE's NTS (see **Figure S-9**). Construction on DAF began in the mid-1980s, when nuclear weapons testing was still in progress. DAF's original purpose was to consolidate all nuclear explosive assembly functions and to provide safe structures for high-explosive and nuclear explosive assembly operations, as well as a state-of-the-art safeguards and security environment.

DAF has five assembly cells, four high bays, three assembly bays, five staging bays, a component testing laboratory, two shipping and receiving buildings, two decontamination facilities, three small vaults, an administration building, alarm stations, an entry guard station, and a mechanical and electrical support building (see **Figure S-10**).

The main facility is covered with a minimum of 1.5 meters (5 feet) of earth. The major operating facilities, assembly cells and bays, radiography bays, and shipping and receiving building have bridge cranes. Each without injury to personnel outside of the cell. Gravel covers are designed to minimize release of nuclear material in the unlikely event of an accidental explosion.

One face of DAF is exposed and opens onto the area enclosed within a PIDAS security fence. DAF has a comprehensive security system designed into the structure.